REMARKS

The enclosed is responsive to the Examiner's Office Action mailed on December 5, 2008 and Notice of Non-Compliant Amendment mailed June 9, 2009. At the time the Examiner mailed the Office Action claims 1-4, 6-8, 10-16, 18-22 and 24-34 were pending. By way of the present response the Applicants have: 1) amended no claims; 2) added no new claims; and 3) canceled no claims. As such, claims 1-4, 6-8, 10-16, 18-22 and 24-34are now pending. The Applicants respectfully request reconsideration of the present application and the allowance of all claims now represented.

Claim Rejections

35 U.S.C. 103(a) Rejections

Claims 1-4, 6-8, 10-16, 18-22 and 24-34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cai et al., U.S. Patent No. 6,349,363 (hereinafter "Cai") and further in view of Gaither, U.S. Patent No. 6,223,256 (hereinafter "Gaither") and Vondran, Jr., U.S. Patent No. 6,243,791 (hereinafter "Vondran").

Cai discloses a system including multiple program execution entities and a cache memory having multiple sections. (Cai abstract) Additionally, Cai discloses a technique where the cache controller selects one of the P-caches based on a comparison of the EID provided by a request and the EID values stored in the storage elements. (Cai column 5, lines 56-59)

Gaither discloses a system including a plurality of processors each having dedicated cache memories, another level of cache shared by the plurality of caches, and a main memory. (Gaither abstract)

The combination does not describe what Applicants' claims require. With respect to claims 1 and 13, the combination does not describe:

> partitioning a cache array into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated for one or more streams having a particular stream ID and the stream ID is stored outside the cache array, wherein the special-purpose entries to use a first cache replacement algorithm and the one or more general-purpose entries to use a second cache replacement algorithm, wherein the first and second cache replacement algorithms are different;
>
> determining if a cross-access scenario exists between at least one of the one or more special purpose entries and at least one of the one or more general purpose entries; and
>
> if the cross-access scenario exists, permitting cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario.

First, the combination does not describe "determining if a cross-access scenario exists between at least one of the one or more special purpose entries and at least one of the one or more general purpose entries." The Office Action asserts that Vondran describes this limitation. As support for this assertion the Office Action cites two sections of Vondran, however, neither of these sections describes this limitation. The first section is from the abstract and states that "[a]n address value of a data access request from a CPU is compared to all cache sets within the cache regardless of the type of data and the type of data access indicated by the CPU to create a unitary interface to the memory hierarchy of the architecture." This indicates that there is never a determination of if a cross-access scenario exists as the address value is compared to all cache sets at all times. The second section recites "[s]ince data can have temporal and spatial access characteristics in different portions of processing, the same data may end up residing in several caches at the same time..." This statement relates generally to problems that may arise when dealing with

multiple caches. It does not relate to determining if a cross-access scenario exists ... as required.

Second, the combination does not describe "if the cross-access scenario exists, permitting cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario." The Office Action again asserts that the above two cites of Vondran describe this limitation. However, as discussed above, Vondran does not describe determining if a cross-access scenario exists and thus does not do anything if one does.

Accordingly, the combination does not describe what Applicant's claims 1 and require. Claims 2-4 and 6 are dependent on claim 1 and are allowable for at least the same reason. Claims 14-18 and 18 are dependent on claim 13 and are allowable for at least the same reason.

With respect to claim 7, the combination does not describe:

> a cache memory array partitioned into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated for one or more streams having a particular stream ID, wherein the stream ID is stored outside the cache array;
>
> control logic to determine if a cross-access scenario exists between at least one of the one or more special purpose entries and at least one of the one or more general purpose entries, wherein the control logic comprises:
>
> special-purpose control logic to store data from the one or more streams in the one or more special-purpose entries when the particular stream ID and the particular input address match a predetermined stream ID and a predetermined input address, the special-purpose control logic to implement a first cache replacement algorithm for the one or more special-purpose entries, and
>
> general-purpose control logic to store data from the one or more streams in the one or more general-purpose entries when the particular stream ID and the particular input address do not match the predetermined stream ID and the predetermined input

address, the general-purpose control logic to implement a second cache replacement algorithm for the one or more general-purpose entries, wherein the first and second cache replacement algorithms are different; and

if the cross-access scenario exists, the control logic to permit cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario.

First, the combination does not describe "control logic to determine if a cross-access scenario exists between at least one of the one or more special purpose entries and at least one of the one or more general purpose entries." The Office Action asserts that Vondran describes this limitation. As discussed above, Vondran does not describe determining if such a scenario exists and rather describes the opposite of such.

Second, the combination does not describe "if the cross-access scenario exists, the control logic to permit cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario." The Office Action again asserts that the above two cites of Vondran describe this limitation. However, as discussed above, Vondran does not describe determining if a cross-access scenario exists and thus does not do anything if one does.

Accordingly, the combination does not describe what Applicant's claim 7 requires. Claims 8 and 10-12 are dependent on claim 7 and are allowable for at least the same reason.

Claims 19, 25 and 30 have similar limitations to 1, 7, and 13 are allowable for at least the same reasons. Claims 20-22 and24 are dependent on claim 19 and are allowable for at least the same rationale. Claims 26-29 are dependent on claim 25 and are allowable for at

least the same rationale. Claims 31-34 are dependent on claim 30 and are allowable for at least the same rationale.

In light of the comments above, the Applicants respectfully request the allowance of all claims.

CONCLUSION

Applicant respectfully submits that all rejections have been overcome and that all pending claims are in condition for allowance.

If there are any additional charges, please charge them to our Deposit Account Number 02-2666. If a telephone conference would facilitate the prosecution of this application, the Examiner is invited to contact Dave Nicholson at (408) 720-8300.

Respectfully submitted,

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